No. 6,280,854). The Examiner rejected claims 6, 7, 10, 11 and 16 to 20 under 35 U.S.C. § 103(a) as allegedly unpatentable over Koksbang in view of Kinard and Tasaka and further in view of Takei et al. (U.S. Patent No. 6,337,155). Applicant respectfully traverses this rejection.

Independent claim 1 has been amended to recite the step of coating lithium complex metal oxide particles with the coating solution to thereby encapsulate the particles with the coating solution. Independent claim 14 has been similarly amended to recite the step of coating lithium-containing manganese-based metal oxide particles with the coating solution to thereby encapsulate the particles with the coating solution. These limitations are neither taught nor suggested by the cited references.

Koksbang is directed to a current collector for a lithium battery. Kokbang explains that the current collector is in the form of a sheet or foil formed of a conducting polymer. (See column 3, lines 29 to 34.) The polymer sheet is then laminated onto a component of the cell for assembly. Koksbang nowhere teaches or suggests coating lithium complex metal oxide particles with the coating solution to thereby encapsulate the particles with the coating solution, as presently claimed. The other cited references do not remedy this deficiency.

Kinard is directed to doped polyaniline solutions. The Examiner relies on Kinard to teach a method of forming polyaniline films and coatings with a solvent. However, Kinard, like Koksbang, is directed to forming a polymeric film on an article. (See claim 1.) Kinard nowhere teaches or suggests a method involving coating lithium complex metal oxide particles with the coating solution to thereby encapsulate the particles with the coating solution, as presently claimed.

Takashashi is relied on to teach the cathodic materials recited in claims 8, 9, 14 and 15. However, Takahashi nowhere teaches or suggests coating lithium complex metal oxide particles with a coating solution.

Tasaka is relied on to teach the addition of a conductive agent in the coating solution. Tasaka is directed to a polymer electrode. The polymer electrode includes an electrode composite material containing an active material including polyaniline and a conducting agent. However, Tasaka nowhere teaches or suggests preparing a lithium secondary battery by coating lithium complex metal oxide particles with a coating solution, much less incorporating the conductive agent into such a coating solution.

Thus, not one of Koksbang, Kinard, Takashashi and Tasaka teaches or suggests coating lithium complex metal oxide particles with a coating solution to thereby encapsulate the particles with the coating solution, as presently claimed.

The only reference that is directed to coating particles is Takei. Takei teaches a battery where the conductive material for the cathode is formed by polymerizing a monomer on the surface of metal oxide particles constituting the cathode. (See column 3, lines 63 to 66.) Takei describes the use of lithium metal oxides (see column 4, lines 13 to 15), as well as the use of polypyrrole, polyaniline, polythiophene and polyfuran as suitable conductive polymers (see column 4, lines 20 to 22). In accordance with the method of Takei, the metal oxide powder particles are added to a solution of monomer in a solvent, and then the monomer is polymerized to form the conductive polymer on the surface of the metal oxide. (Column 4, lines 27 to 34.) In contrast, the present claims recite dissolving a conductive polymer in a solvent to prepare a coating solution, and then coating the metal oxide particles with the coating solution.

As explained in the present specification at page 2, lines 1 to 9, the method of Takei is disadvantageous in that γ-MnO_2 formed from the modified complex metal oxide is oxidized during the polymerization, resulting in poor performance, including poor initial capacity and unstable cycle characteristics. Thus, Takei coats the metal oxide using a method different from that claimed, and does not teach or suggest the presently claimed method.

One skilled in the art would not look to any of Koksbang, Kinard, Takashashi and Tasaka to modify the method of Takei to arrive at the claimed invention. As discussed above, Koksbang and Kinard are directed to preparing polymer films and sheets to coat surfaces. Coating a large surface is very different from coating the surface of a particle, and very different techniques are employed to do so. Takashashi does not even address coating a surface. And Tasaka is directed to forming a polymer electrolyte. None of these references provide the requisite motivation to modify the method disclosed in Takei, nor does Takei itself provide the requisite motivation. Accordingly, even the combination of Koksbang, Kinard and Takei does not render obvious the present claims.

As such, no combination of the cited references renders unpatentable the present claims. Applicant therefore respectfully requests that the rejections under section 103(a) be withdrawn.

In view of the foregoing amendments and remarks, Applicant respectfully submits that pending claims 1 to 22 are in condition for allowance, and a timely indication of allowance is

respectfully requested. If there are any remaining issues that can be addressed by telephone, Applicant invites the Examiner to contact the undersigned at the number indicated below.

Respectfully submitted,

CHRISTIE, PARKER & HALE, LLP

By _____

Kathleen M. Olster
Reg. No. 42,052
626/795-9900

KMO/edb

VERSION TO SHOW CHANGES MADE

In the claims:

Please amend claims 1, 13, 14 and 20 as follows:

1. (Amended) A method of preparing positive active material for a lithium secondary battery comprising:

preparing a coating solution by dissolving a conductive polymer in a solvent; and

coating lithium complex metal oxide particles with the coating solution to thereby encapsulate the particles with the coating solution.

13. (Amended) The method of claim 1, wherein the lithium complex metal oxide [~~is~~] particles are coated generally evenly over [~~the~~] their entire [~~surface of the metal oxide~~] surfaces.

14. (Amended) A method of preparing positive active material for a lithium secondary battery comprising:

preparing a coating solution by dissolving a conductive polymer in a solvent; and

coating lithium-containing manganese-based metal oxide particles with the coating solution to thereby encapsulate the particles with the coating solution.

20. (Amended) The method of claim 16, wherein the lithium complex metal oxide [~~is~~] particles are coated generally evenly over [~~the~~] their entire [~~surface~~] surfaces [~~of the metal oxide~~].